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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,044	01/09/2002	Y. C. Lim	FS00-001	1978

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EXAMINER

DÖ. CHAT C

ART UNIT PAPER NUMBER

2124

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/041,044

Applicant(s)

LIM, Y. C.

Examiner

Chat C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/09/02; 03/12/02; 03/26/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/26/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the structure of the transfer function in claims 2 and 3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 3 and 6 are objected to because of the following informalities: these claims are required a period (.) at the end of claims. Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-3 clearly recite a filter implementing a transfer function according to a mathematic algorithm. Claims 4-6 recite a method to carry-out the above filter. In order for such a claimed method, computer-related process, or a claimed non-specified apparatus implementing the underlined process to be statutory, the claims must include either a step or means that results in a physical transformation outside the computer or a limitation to a practical application. However, it is clear from the claims' body that the claims merely recite step or non-specific means for data computation and manipulation in performing a mathematical transfer function. The input is a set of number and output is also a set of number. The claims fail to recite any step or means that results in a physical transformation outside the computer, that includes a limitation to a practical application, or that requires a specific computer to implement the claimed process. Therefore, claims 1-6 are clearly directed to a non-statutory subject matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Tan et al. (U.S. 6,233,594).

Re claim 1, Tan et al. disclose in Figure 4 a multichannel digital filter bank (110) implemented by cascading sub-filters (e.g. 122) of the recursive type (feedback as seen in 122 with delay z^{-1}) suitable for graphically equalizing electrical signals received via a communication path having minimal distortion of signal spectral characteristics including magnitude and phase (col. 2 lines 1-15) nor does this method introduce additional delay to the signal comprising: a plurality of first order (e.g. 122, 124 in Figure 4) or second order digital filters, connected in a cascade fashion (e.g. 122 and 124 one after another).

Re claim 4, it is a method of claim 1. Thus, claim 4 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

7. Claims 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Dyer (U.S. 4,947,360).

Re claim 2, Dyer discloses in Figures 1-2 a multichannel digital filter bank implemented by cascading sub-filters (e.g. 1 and 3) of the recursive type suitable (e.g. in 1 with feedback signal) for graphically equalizing electrical signals received via a communication path having minimal distortion of signal spectral characteristics including magnitude and phase (col. 1 lines 35-50) nor does this method introduce additional delay to the signal comprising: a plurality of first order (e.g. 1 and 3) or second order digital filters, connected in a cascade fashion (e.g. filter 1 is after filter 3) wherein the transfer function is $H(z) = \{1-az^{-1}\}/\{1-bz^{-1}\}$ (e.g. B(z) equation in col. 2 line 29 wherein $b = K_3$ and $a = -(K_2K_4-K_3)$) ; wherein $|a|$ and $|b|$ are less than 1 (e.g. all values of coefficients are cited in Table 1 in col. 4 less than 1) and same sign.

Re claim 5, it is a method of claim 2. Thus, claim 5 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

8. Claims 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Cox et al. (U.S. 5,353,346).

Re claim 3, Cox et al. disclose in Figure 2 a multichannel digital filter bank implemented by cascading sub-filters (e.g. 14H and 24H) of the recursive type suitable for graphically equalizing electrical signals received via a communication path having minimal distortion of signal spectral characteristics including magnitude and phase nor does this method introduce additional delay to the signal comprising: a plurality of first order or second order digital filters (e.g. equation 50 in col. 3), connected in a cascade fashion (e.g. 14H and 24H) wherein the transfer function is $H(z) = \{1-2g\cos(p)z^{-1}\}$

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$1+g^2z^2\}/\{1-2r\cos(p)z^{-1}+r^2z^2\}$ (e.g. $H(z)$ in col. 3 line 50 wherein $g = 1$; $r = \text{beta}$; $p = 2\text{pif_estT}$ as seen in col. 6 line 10).

Re claim 6, it is a method of claim 3. Thus, claim 6 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. U.S. Patent No. 6,112,218 to Gandhi et al. disclose a digital filter with efficient quantization circuitry.

b. U.S. Patent No. 5,689,449 to Saramaki et al. disclose a decimation filter.

c. U.S. Patent No. 4,748,578 to Lagadec et al. disclose a process and apparatus for translating the sampling rate of a sampling sequence.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (703) 305-5655. The examiner can normally be reached on M => F from 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (703) 305-9662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2124

November 9, 2004

Kakali Chak
**KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
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